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ART UNIT	PAPER NUMBER
2192	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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	Application No.	**Applicant(s)**
Office Action Summary	10/612,097	ECKHART ET AL.
	Examiner	**Art Unit**	
	J. Derek Rutten	2192	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>28 June 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-42</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-42</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This action is in response to Applicant's submission filed 6/28/07 (hereinafter

"Response"), responding to the 3/28/07 Office action which detailed the rejection of claims 1-42.

Claims 1, 20, and 29 have been amended. Claims 1-42 remain pending in the application and

have been fully considered by the examiner.

Response to Amendments/Arguments

2.   The rejection of claim 20 under 35 U.S.C. § 112, 2nd paragraph, is withdrawn in view of

the claim amendment.

3.   On pages 12-13 of the Response, with respect to the provisional rejection of claims 1, 15,

and 29 on the grounds of non-statutory obviousness-type double patenting over copending App.

No. 10/782,080 in view of US Patent 5,568,644 to Nelson et al., Applicants essentially argue that

Nelson does not teach or suggest employing a condition management structure. However,

Nelson was not relied upon to teach a condition management structure. This feature was

disclosed by the '080 application. Nelson was relied upon to teach the propagation of status

information to enable an interrupt See column 4 lines 14-15, e.g. "propagate a hardware

interrupt." Therefore, Applicants' argument is not persuasive.

4.   On page 13 of the Response, with respect to the rejection of claims 1-3, 7-12, 14, and 29-

42 under 35 U.S.C. § 101, Applicants essentially argue that amendments to claims 1 and 29

provide statutory subject matter. No further explanations were provided in the response.

        Claim 1 contains an amendment: "A <u>computer-implemented</u> condition management

system..." This amendment fails to provide statutory subject matter, since the elements of the

system are still claimed as descriptive material per se. Therefore, Applicants arguments with

respect to claim 1 are not persuasive.

Claim 29 contains the amendment: "A memory for storing status indicators data…" The

amendment fails to address the applied rejections, which are directed to failure to claim statutory

subject matter in terms of providing a useful result and claiming nonfunctional descriptive

material. Applicant has not provided further arguments explaining how the amendment

overcomes the applied rejection. Therefore, the arguments are not persuasive, and the rejections

are maintained.

5.   On pages 14 and 15 of the Response, with respect to the rejections of claims 1, 2, 5-11,

13, 15, 16, 19-25, 27, 29-31, 33-35 and 39-42 under 35 U.S.C. § 102(b), and claims 3, 4, 12, 14,

16-18, 28, 32, and 36-37 under 35 U.S.C. §103, Applicants essentially argue that the prior art of

record, US Patent 5,568,644 to Nelson et al. discloses traversing a hierarchical Interrupt Source

Tree (IST) using an interrupt service routine (ISR) to determine which node caused an interrupt,

and thus does not disclose "another structure" by employing a condition management structure to

traverse a hierarchical register consolidation structure to determine a condition of at least one

status indicator, as recited in claims 1, 15, and 29. However, Applicants' interpretation is

respectfully traversed. Nelson column 4 line 66 – column 5 line 5 discloses:

> At step 200, an interrupt is generated and **the interrupt dispatching process or interrupt engine**
> begins processing at the root node of the **hierarchical IST** by making the root node the current
> evaluation node, step 205. **The ISR** of the current evaluation node is then invoked, step 210. Each
> leaf node provides a device handler ISR to service a device. [emphasis added]

Nelson uses an interrupt engine to traverse the IST, then uses the ISR to service the node. Thus,

Nelson uses "another structure" to traverse the hierarchical IST. Therefore, Applicants'

arguments are not persuasive.

Double Patenting

6.   The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

     A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

     Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7.   Claims 1, 15, and 29 are provisionally rejected on the ground of nonstatutory

obviousness-type double patenting as being unpatentable over claims 1 and 11 of copending

Application No. 10/782,080 in view of U.S. Patent 5,568,644 to Nelson et al. (hereinafter

"Nelson").

     For example, in regard to claim 1, the '080 application claims:

     A computer-implemented condition management system for use with a processor

employing a hierarchical register consolidation structure, comprising: See claim 1 lines

1-3:

> A computer-implemented condition management callback system for use with a processor employing a hierarchical register consolidation structure, comprising

> *a condition management structure configured to abstract groups of status indicators associated with said hierarchical register consolidation structure into a tree of hierarchical container objects and element objects, each of said container objects associated with at least one of said element objects and linked to a single parent object, each of said element objects configured to represent at least one of said status indicators and linked to a single child object;* See claim 1 lines 4-11:

> > a condition management structure containing groups of status indicators associated with said hierarchical register consolidation structure logically abstracted into a tree of hierarchical container objects and element objects, each of said container objects associated with at least one of said element objects and linked to a single parent object, each of said element objects representing at least one of said status indicators and linked to a single child object

> *an abstraction retrieval subsystem configured to employ said condition management structure to traverse said hierarchical register consolidation structure to determine a condition of at least one of said status indicators; and* See claim 1 lines 15-18:

> > an abstraction retrieval subsystem configured to employ said condition management structure to determine a condition of at least one of said status indicators by traversing said hierarchical register consolidation structure

The '080 application does not expressly disclose: *an abstraction management subsystem configured to employ said condition management structure to control a propagation of selected ones of said status indicators through said hierarchical register consolidation structure.* However, Nelson teaches the propagation of status information associated with enabling an interrupt. See column 4 lines 14-15, e.g. "propagate a hardware interrupt." It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Nelson's propagation with the system of '080 in order to control the priority of interrupts by propagating status information.

This is a <u>provisional</u> obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 101

8.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

9.   Claims 1-3, 7-12, and 14 are rejected under 35 U.S.C. 101 because the claimed invention

is directed to non-statutory subject matter.

Claim 1 is directed to a "computer-implemented condition management system for use

with a processor." However, this system appears to be comprised of mere software elements that

are interpreted as being a software system, per se. Data structures not claimed as embodied in

computer-readable media are descriptive material per se and are not statutory because they are

not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at

1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). Such claimed data

structures do not define any structural and functional interrelationships between the data

structure and other claimed aspects of the invention which permit the data structure's

functionality to be realized. In this case, a "condition management system *for use* with a

processor" is recited. However, the claim language includes the phrase "for use" which indicates

that the processor is not part of the system. Further claim elements are merely directed to

software elements and do not include any statutory system elements. In contrast, claim 4 further

limits the condition management structure to be a hardware element ("pre-allocated within the

hardware") which is interpreted to provide a statutory system element permitting the data

structure's functionality to be realized. Claims 2, 3, 7-12, and 14 are dependent upon claim 1 but

fail to provide any further statutory system elements. See MPEP 2106.01.

10.   Claims 29-42 are rejected under 35 U.S.C. 101 because the claimed invention is directed

to non-statutory subject matter.

Claims 29-42 are directed to a memory for storing status indicators comprising various

data structures. This claimed subject matter lacks a practical application of a judicial exception

(law of nature, abstract idea, naturally occurring article/phenomenon) since it fails to produce a

useful, concrete and tangible result. Specifically, the claimed subject matter does not produce a

useful result because the claimed subject matter fails to sufficiently reflect at least one practical

utility set forth in the descriptive portion of the specification. More specifically, while the

described practical utility is directed to controlling the propagation of status indicators through a

hierarchical register consolidation structure (see paragraph [0008]), the claimed subject matter

relates ONLY to the organization of a data structure used to represent a hierarchical register

consolidation structure. None of the claims are directed to the *propagation* of status indicators as

suggested in the specification. It is noted that claim 41 is directed to status indicators. However,

there is no useful result achieved through a propagation of these indicators. See MPEP

2106(IV)(C)(2)(2)(a).

Further, claims 29-42 are directed to a "memory for storing status indicators." Further

claim elements are directed to the organization of this data, and are interpreted as being

nonfunctional descriptive material. Descriptive material can be characterized as either

"functional descriptive material" or "nonfunctional descriptive material." In this context,

"functional descriptive material" consists of data structures and computer programs which

impart functionality when employed as a computer component. Data structures not claimed as

embodied in computer-readable media are descriptive material per se and are not statutory

because they are not capable of causing functional change in the computer. See, e.g.,

Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held

nonstatutory). When *nonfunctional descriptive material* is recorded on some computer-readable

medium, in a computer or on an electromagnetic carrier signal, it is *not statutory* since no

requisite functionality is present to satisfy the practical application requirement. Such claimed

data structures do not define any structural and functional interrelationships between the data

structure and other claimed aspects of the invention which permit the data structure's

functionality to be realized. In contrast, a claimed computer-readable medium encoded with a

data structure defines structural and functional interrelationships between the data structure and

the computer software and hardware components which permit the data structure's functionality

to be realized, and is thus statutory. See MPEP 2106.01.

Claim Rejections - 35 USC § 102

11.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on
sale in this country, more than one year prior to the date of application for patent in the United States.

12.   Claims 1, 2, 5-11, 13, 15, 16, 19-25, 27, 29-31, 33-35, and 39-42 are rejected under 35

U.S.C. 102(b) as being anticipated by U.S. Patent 5,568,644 to Nelson et al. (hereinafter

"Nelson").

In regard to claim 1, Nelson discloses:

A computer-implemented condition management system (see Fig. 2) *for use with a*

processor employing a hierarchical register consolidation structure, comprising:

a condition management structure configured to abstract groups of status

indicators associated with said hierarchical register consolidation structure into a tree of

hierarchical container objects and element objects, each of said container objects

associated with at least one of said element objects and linked to a single parent object,

See Fig. 1A., also column 3 lines 9-15, e.g. "hierarchical tree." Nelson provides an

abstraction of a hierarchy used for managing interrupts.

each of said element objects configured to represent at least one of said status indicators

and linked to a single child object; Fig. 1A illustrates that each element is associated

with a single set, or collection, of element objects. Further, see column 3 lines 44-51.

an abstraction retrieval subsystem configured to employ said condition

management structure to traverse said hierarchical register consolidation structure to

determine a condition of at least one of said status indicators; and See column 4 line 66

– column 5 line 2, e.g. "interrupt engine begins processing."

an abstraction management subsystem configured to employ said condition

management structure to control a propagation of selected ones of said status indicators

through said hierarchical register consolidation structure. See column 4 lines 13-14,

e.g. "propagate an interrupt."

In regard to claim 2, the above rejection of claim 1 is incorporated. Nelson

further discloses: *wherein each of said container objects includes said at least one of said*

element objects. See Fig. 1A.

In regard to claim 5, the above rejection of claim 1 is incorporated. Nelson

further discloses: *wherein said status indicators are bits of registers within said*

hierarchical register consolidation structure. See column 3 lines 35-37. Note that

registers are computer devices that store a collection of bits.

In regard to claim 6, the above rejection of claim 1 is incorporated. Nelson

further discloses: *wherein said hierarchical register consolidation structure is a*

hierarchical interrupt register structure of said processor. See column 3 lines 9-13.

In regard to claim 7, the above rejection of claim 6 is incorporated. Nelson

further discloses: *wherein each of said status indicators represents an interrupt bit in an*

interrupt register of said hierarchical interrupt register structure. See column 3 lines 35-

37.

In regard to claim 8, the above rejection of claim 7 is incorporated. Nelson further discloses: *wherein said abstraction management subsystem is further configured to set/clear or enable/disable interrupts for said interrupt bit.* See column 8 lines 18-21.

In regard to claim 9, the above rejection of claim 1 is incorporated. Nelson further discloses: *wherein said parent object is a consolidation element object associated with a hierarchically higher container object and said child object is a hierarchically lower container object.* See Fig. 1A in view of the key in Fig. 1B

In regard to claim 10, the above rejection of claim 9 is incorporated. Nelson further discloses: *wherein said consolidation element object represents the consolidation of all of said element objects associated with said child object.* See column 9 lines 48-50 in view of FIG. 1A.

In regard to claim 11, the above rejection of claim 1 is incorporated. Nelson further discloses: *wherein said abstraction management subsystem is further configured to set/clear said status indicators or maintain associated parameters for one or more of said status indicators.* See column 4 lines 3-5, e.g. "third parameter." Note that the claim language includes the alternative "or," which permits broad interpretation of maintenance of parameters as satisfying the claim.

In regard to claim 13, the above rejection of claim 1 is incorporated. Nelson further discloses: *wherein said container objects include addresses to registers of said hierarchical register consolidation structure, said abstraction retrieval subsystem and said abstraction management subsystem further configured to employ said addresses in accessing said hierarchical register consolidation structure.* See column 3 line 47.

In regard to claim 15, Nelson discloses a method. See Fig. 3. All further limitations have been addressed in the above rejection of claim 1.

In regard to claims 16, 19-25, and 27, the above rejection of claim 15 is incorporated. All further limitations have been addressed in the above rejection of claims 2, 5-11, and 13, respectively.

In regard to claim 29, Nelson discloses: *A memory for storing status indicators for access by an application program being executed in a processor.* See Fig. 2 element 20. All further limitations have been addressed in the above rejection of claims 1 and 9.

In regard to claim 30, the above rejection of claim 29 is incorporated. Nelson further discloses: *wherein one of said container objects being associated with said at least one of said element objects and a virtual element object if two groups of said status indicators consolidate to a single consolidation status indicator of said hierarchical register consolidation structure, said virtual element object being said parent object to*

one of said container objects associated with said element objects representing said

status indicators of one of said two groups. See Fig. 1A. Note elements 110, 115, 145,

150, and setc.

In regard to claim 31, the above rejection of claim 29 is incorporated. Nelson

further discloses: *wherein a single one of said element objects being said parent object to*

one of said container objects associated with said element objects representing a group

of said status indicators if said group of said status indicators consolidate to a plurality

of consolidation status indicators of said hierarchical register consolidation structure,

remaining ones of said plurality of said consolidation status indicators not being

represented in said condition management data structure. See Fig. 1A, element 115 in

view of column 9 lines 48-64.

In regard to claim 33, the above rejection of claim 29 is incorporated. All further

limitations have been addressed in the above rejection of claim 2.

In regard to claim 34, the above rejection of claim 29 is incorporated. Nelson

further discloses: *wherein only one of said container objects is a root container object,*

said root container object being associated with a hierarchically highest group of said

status indicators of said hierarchical register consolidation structure and being a

starting point for accessing said condition management data structure, said root

container object further having said parent link to said parent object being

unestablished. See Fig. 1A, element 105.

In regard to claim 35, the above rejection of claim 34 is incorporated. Nelson

further discloses: *wherein ones of said container objects are leaf container objects, each*

of said leaf container objects being associated with a hierarchically lowest group of said

status indicators, each of said elements objects associated with said leaf container

objects having said child link to said child object being unestablished. See Fig. 1A,

"setd"

In regard to claims 39-42, the above rejection of claim 29 is incorporated. All

further limitations have been addressed in the above rejection of claims 5-7 and 10,

respectively.

Claim Rejections - 35 USC § 103

13.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

14.   Claims 3, 4, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Nelson as applied to claims 1 and 15 above, and further in view of U.S. Patent 5,495,615 to

Nizar et al. (hereinafter "Perez").

In regard to claim 3, the above rejection of claim 1 is incorporated. Nelson does not expressly disclose: *wherein said condition management structure is dynamically allocated.* However, Nizar teaches dynamic allocation of interrupt assignment. See column 5 lines 6-8. It would have been obvious to one of ordinary skill at the time the invention was made, to use Nizar's dynamic allocation with Nelson's hierarchical tree in order to restrict interrupt priority levels as suggested by Nizar (see column 5 lines 13-15).

In regard to claim 4, the above rejection of claim 1 is incorporated. Nelson does not expressly disclose: *wherein said condition management structure is pre-allocated within the hardware associated with said processor.* However, Nizar teaches pre-allocation of interrupt assignment. See column 5 lines 2-5. It would have been obvious to one of ordinary skill at the time the invention was made, to use Nizar's static allocation with Nelson's hierarchical tree in order to comply with licensing restrictions as suggested by Nizar (see column 5 lines 11-13).

In regard to claims 17 and 18, the above rejection of claim 15 is incorporated. All further limitations have been addressed in the above rejection of claims 3 and 4, respectively.

15.   Claims 12 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson

as applied to claims 1 and 15 above, and further in view of "Operating System Concepts" by

Silberschatz et al. (hereinafter "Silberschatz").

        In regard to claim 12, the above rejection of claim 1 is incorporated. Nelson does

not expressly disclose: *wherein said abstraction management subsystem is further*

configured to create or destroy said condition management structure. However,

Silberschatz teaches the creation of program structures. See page 252 paragraph 2. It

would have been obvious to one of ordinary skill at the time the invention was made, to

use Silberschatz' teaching of allocation with Nelson's structures in order to load data into

memory for processing as suggested by Silberschatz (see page 252 paragraph 2).

        In regard to claim 26, the above rejection of claim 15 is incorporated. All further

limitations have been addressed in the above rejection of claim 12.

16.   Claims 14 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson

as applied to claims 1 and 15 above, and further in view of U.S. Patent 5,530,874 to Emery et al.

(hereinafter "Emery").

        In regard to claim 14, the above rejection of claim 1 is incorporated. Nelson

further discloses *element objects associated with a leaf container object.* See Fig. 1A.

Nelson does not expressly disclose: *wherein said abstraction retrieval subsystem is*

further configured to employ a mask to determine said condition of said at least one of

said status indicators represented by ones of said element objects. However, Emery

teaches the use of interrupt masks. See column 2 lines 40-54, e.g. "mask logic." It would

have been obvious to one of ordinary skill at the time the invention was made, to use

Emery's mask logic with Nelson's tree in order to determine if a particular interrupt

should be disabled as suggested by Emery (see column 3 lines 1-6).

In regard to claim 28, the above rejection of claim 15 is incorporated. All further

limitations have been addressed in the above rejection of claim 14.

17.   Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson as applied

to claim 29 above, and further in view of U.S. Patent 6,584,532 to Francis et al. (hereinafter

"Francis").

In regard to claim 32, the above rejection of claim 29 is incorporated. Nelson

discloses grouping elements in a child container having a parent container (see Fig. 1A).

Nelson does not expressly disclose: *wherein a first portion of one group of said status*

indicators being represented by a first set of said element objects associated with one of

said container objects and a second portion of said one group of said status indicators

being represented by a second set of said element objects associated with a virtual

container object if said first and second portions of said one group of said status

indicators consolidate to different consolidation status indicators of said hierarchical

register consolidation structure, said virtual container object having a virtual parent link

to a different parent object than said parent link of said one of said container objects.

However, Francis teaches that various elements on a level can have different parent

objects. See Fig. 2. It would have been obvious to one of ordinary skill at the time the

invention was made, to use Francis' teaching of trees with Nelson's tree in order to

provide a flexible implementation of Nelson's tree.

18.   Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson as applied

to claim 29 above, and further in view of U.S. Patent 5,129,083 to Cutler et al. (hereinafter

"Cutler").

In regard to claim 36, the above rejection of claim 29 is incorporated. Nelson

does not expressly disclose: *wherein each of said element objects include a container link*

to its associated one of said container objects. However, Cutler teaches an object with a

pointer to the container in which it resides. See column 8 lines 58-60. It would have

been obvious to one of ordinary skill at the time the invention was made, to use Cutler's

pointer with Nelson's elements in order to provide easy traversal of a tree.

19.   Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson as applied

to claim 29 above, and further in view of U.S. Patent 5,995,736 to Aleksic et al. (hereinafter

"Aleksic").

In regard to claim 37, the above rejection of claim 29 is incorporated. Nelson does not expressly disclose: *wherein each of said element objects include a unique name and a position of said at least one of said status indicators within a register of said hierarchical register consolidation structure that is associated with said at least one of said status indicators.* However, Aleksic teaches unique names and positions in a register. See column 9 lines 34-36. It would have been obvious to one of ordinary skill at the time the invention was made, to use Aleksic's names and positions with Nelson's elements in order to provide information useful for analysis.

20.   Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson as applied to claim 29 above, and further in view of U.S. Patent 6,883,053 to Shinagawa et al. (hereinafter "Shinagawa").

In regard to claim 38, the above rejection of claim 29 is incorporated. Nelson further discloses a persistency parameter (see column 4 lines 3-5). Nelson does not expressly disclose: *wherein each of said container objects include an address of a register of said hierarchical register consolidation structure selected from the group consisting of: a status register address; a mask register address; a persistency register address; and an alarm register address.* However, Shinagawa teaches the use of a status register along with a mask register (see column 2 lines 27-34). Further, Archer teaches the use of an alarm register (see column 5 lines 27-28). It would have been obvious to one of ordinary skill at the time the invention was made, to use Shinagawa's status and

mask registers along with Archer's alarm register with Nelson's persistency parameter in

order to provide quick access to data.

Conclusion

21.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

22.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to J. Derek Rutten whose telephone number is (571)272-3703. The

examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tuan Q. Dam can be reached on (571)272-3695. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jdr

TUAN DAM
SUPERVISORY PATENT EXAMINER